

Standard .04B(7). Construction Cost of Hospital Space.

The proposed cost of a hospital construction project shall be reasonable and consistent with current industry cost experience in Maryland. The projected cost per square foot of a hospital construction project or renovation project shall be compared to the benchmark cost of good quality Class A hospital construction given in the Marshall Valuation Service® guide, updated using Marshall Valuation Service® update multipliers, and adjusted as shown in the Marshall Valuation Service® guide as necessary for site terrain, number of building levels, geographic locality, and other listed factors. If the projected cost per square foot exceeds the Marshall Valuation Service® benchmark cost, any rate increase proposed by the hospital related to the capital cost of the project shall not include the amount of the projected construction cost that exceeds the Marshall Valuation Service® benchmark and those portions of the contingency allowance, inflation allowance, and capitalized construction interest expenditure that are based on the excess construction cost.

The Marshall Valuation Service ("MVS") analysis is set forth below. The project includes two separate components – the patient care floors and the mechanical penthouse. A complete MVS analysis is included as Exhibit ____.

I. Marshall Valuation Service Benchmark
The Hospital (excluding the Penthouse)

Type	Hospital
Construction Quality/Class	Good/A
Stories	6
Perimeter	1,265
Average Floor to Floor Height	14.6
Square Feet	235,857
f.1 Average floor Area	39,310

A. Base Costs

	\$
Basic Structure	301.43
Elimination of HVAC cost for adjustment	0
HVAC Add-on for Mild Climate	0
HVAC Add-on for Extreme Climate	0
Total Base Cost	\$301.43

Cost Factors

Adjusted Total Base Cost	\$329.50
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B. Additions

Elevator (If not in base)	\$0.00
Other	\$0.00
Subtotal	\$0.00

Total	\$329.50
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C. Multipliers

Perimeter Multiplier	0.928825567
Product	\$306.05

Height Multiplier	1.05911
Product	\$324.14

Multi-story Multiplier	1.015
Product	\$329.00

D. Sprinklers

Sprinkler Amount	\$2.08
Subtotal	\$331.08

E. Update/Location Multipliers

Update Multiplier	1.05
Product	\$347.63

Location Multiplier	1.03
Product	\$358.06

Calculated Square Foot Cost Standard	\$358.06
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In the above calculation, Holy Cross has included a factor to adjust for the cost differential by department. In Section 87, Page 8 of the MVS, MVS provides departmental cost differentials for the construction of each type of area of a hospital,

providing a multiplier which should be multiplied against the average hospital construction cost. Holy Cross has applied these factors using the departmental categories and factors supplied by MVS. The categories and factors applied to each of the floors are shown below.

<i>Floor/Department</i>	<i>Square Footage (BGSF)</i>	<i>MVS Department Name</i>	<i>MVS Differential Cost Factor</i>	<i>Cost Factor X SF</i>
First - D&T				
Emergency Department	13,781	Emergency Suite	1.18	16,261.58
Observation	2,384	Inpatient Units	1.06	2,527.04
Psych	4,761	Inpatient Units	1.06	5,046.66
Diagnostic/Testing	4,495	Outpatient Department	0.99	4,450.05
Imaging	12,716	Radiology	1.22	15,513.52
Concierge / Conference / Admit	8,765	Public Space	0.8	7,012.00
Engineering Offices	1,130	Offices	0.96	1,084.80
Dining /Serving Area	3,663	Dining Room	0.5	1,831.50
Kitchen	3,786	Dishwashing Kitchen	1.59	6,019.74
Mat'ls Mgmt / Support	8,736	Storage & Refrigeration	1.6	13,977.60
IT/Telecom	2,413	Offices	0.96	2,316.48
	66,630			
Second - D&T				
Universal Care Unit	12,481	Inpatient Units	1.06	13,229.86
Surgical Suite & Support	18,756	Operation Suite, Total	1.59	29,822.04
ICU	10,597	Inpatient Units	1.06	11,232.82
Chapel	979	Public Space	0.8	783.20
Central Sterile Supply	6,227	Central Sterile Supply	1.54	9,589.58
Lab	6,257	Laboratories	1.15	7,195.55
BioMed	870	Laboratories	1.15	1,000.50
Conference	1,450	Public Space	0.8	1,160.00
Surgical Support	2,496	Operation Suite, Total	1.59	3,968.64
	60,113			
Third - Support Bldg				
Womens' Services	27,980	Inpatient Units	1.06	29,658.80
Control Center	655	Public Space	0.8	524.00
Administration	7,486	Administration	0.96	7,186.56
Pharmacy	5,874	Pharmacy	1.33	7,812.42
	41,995			

Fourth Med/Surg	22,373	Inpatient Units	1.06	23,715.38
Fifth Med/Surg	22,373	Inpatient Units	1.06	23,715.38
Sixth Shell Space	22,373	Unassigned Space	0.5	11,186.50
Total BGSF	235,857		1.09	257,822.20

II. Marshall Valuation Service Benchmark The Penthouse

Type Construction Quality/Class	Mechanical Penthouse Good/A
Stories	7
Perimeter	375
Average Floor to Floor Height	15.00
Square Feet	1,985
Average floor Area	1,985

A. Base Costs

	\$
Basic Structure	75.14
Elimination of HVAC cost for adjustment	0
HVAC Add-on for Mild Climate	0
HVAC Add-on for Extreme Climate	0
Total Base Cost	\$75.14

B. Additions

Elevator (If not in base)	\$0.00
Other	\$0.00
Subtotal	\$0.00
Total	\$75.14

C. Multipliers

Perimeter Multiplier	1.33687064
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Product	\$ 100.45
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Height Multiplier	1.069
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Product	\$107.38
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Multi-story Multiplier	1.035
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Product	\$111.14
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D. Sprinklers

Sprinkler Amount	\$1.53
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Subtotal	\$112.67
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E. Update/Location Multipliers

Update Multiplier	1.05
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Product	\$118.31
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Location Multiplier	1.03
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Product	\$121.85
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Calculated Square Foot Cost Standard	\$121.85
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III. Consolidated MVS Benchmark

Standard	MVS Benchmark	Sq. Ft.	Total Cost Based on MVS
<u>"Tower" Component</u>	\$358.06	235,857	\$ 84,451,887.13
<u>Mechanical Penthouse</u>	\$121.85	1,985	\$ 241,881.95
<u>Consolidated</u>	\$ 356.09	237,842	\$ 84,693,769.08

IV. Project Costs

The Project costs are calculated as follows:

A. Base Calculations	Actual	Per Sq. Foot
Building	\$86,809,872	\$364.99
Fixed Equipment	\$3,439,500	\$14.46
Site Preparation	\$7,139,623	\$30.02
Architectural Fees	\$5,975,188	\$25.12
Permits	\$1,174,369	\$4.94
Capitalized Construction Interest	\$2,751,236	\$11.57
Subtotal	\$107,289,788	\$451.10

As directed by MHCC staff years ago, only the Capitalized Construction Interest associated with the "Building" cost applies in the MVS analysis. The Capitalized Construction Interest allocable to the Building cost was calculated as follows:

	New	Renovation	Total
Building Cost	\$86,809,872	N/A	
Subtotal Cost (w/o Cap Interest)	\$104,538,552	N/A	\$104,538,552
Subtotal/Total	100.0%	N/A	
Total Project Cap Interest For New Construction [(Subtotal Cost/Total Cost) X Total Cap Interest]	\$3,313,105	N/A	\$3,313,105
Building/Subtotal	83.0%	N/A	
Building Cap Interest	\$2,751,236	N/A	

However, this project includes a considerable amount of costs for facets of the project that would not be included in the MVS average, such as demolition, canopies, etc. Associated Capitalized Construction Interest for those items included in the "Building" cost center are included as Extraordinary costs.

B. Extraordinary Cost Adjustments

	Project Costs	Associated Capitalized Interest For Those Items in "Building"	Total
Storm Drains	\$1,078,553		\$1,078,553
Deep Foundations	\$82,000		\$82,000
Canopy	\$87,240	\$2,765	\$90,005
Jurisdictional Hook-up Fees	\$2,500,000	\$79,232	\$2,579,232
Signs	\$987,383	\$31,293	\$1,018,676

Landscaping	\$1,203,400		\$1,203,400
Additional Elevators	\$350,000	\$11,092	\$361,092
Foundation Draining and Dewatering	\$47,668	\$1,511	\$49,179
Site Improvements	\$1,532,140	\$48,558	\$1,580,698
Pneumatic Tube System	\$355,850	\$11,278	\$367,128
Redundant Generator Capacity	\$325,000	\$10,300	\$335,300
Helipad	\$291,730	\$9,246	\$300,976
Premium Concrete Frame Construction	\$474,466	\$15,037	\$489,503
Market Sprinkler Cost Difference	\$335,321	\$10,627	\$345,948
LEED Certified Premium	\$931,498	\$29,522	\$961,020
LEED Silver Premium	\$2,195,050	\$69,567	\$2,264,617
Redundant Boiler System	\$850,000	\$26,939	\$876,939
Redundant Chiller System	\$1,150,000	\$36,447	\$1,186,447
Site Improvements - Rough Grading	\$3,383,800		\$3,383,800
Architectural Feature	\$302,000	\$9,571	\$311,571
Total Cost Adjustments	\$18,463,099		\$18,866,082.19

C. Adjusted Project Cost

Per Square Foot

\$88,423,706
\$ 371.77

A description of the Extraordinary Costs follows:

Storm Drains: Include land improvement costs for storm water drainage and storm water management systems. Local authorities have enacted new regulations far exceeding normal storm water management practices. These costs are specifically excluded from the Marshall & Swift Valuation base square foot cost for a Class A/Good General Hospital.

Deep Foundations: Based on geo-technical analysis, some deep foundation systems will be required to meet structural design parameters. This cost is in excess of the spread foot foundations included in the Marshall & Swift Valuations.

Canopies: Vehicular and pedestrian overhangs and awnings attached to the building structure. These costs are specifically excluded from the Marshall & Swift Valuation base square foot cost for a Class A/Good General Hospital.

Jurisdictional Hook-up Fees: Tap fees for installation of valve and meter vaults for domestic and fire water supply, sanitary waste, etc. These costs are specifically excluded from the Marshall & Swift Valuation base square foot cost for a Class A/Good General Hospital.

Signage and Way-finding: These costs are specifically excluded from the Marshall & Swift Valuation base square foot cost for a Class A/Good General Hospital.

Landscaping: Yard improvement costs for grass, trees, shrubbery and other site design features. These costs are specifically excluded from the Marshall & Swift Valuation base square foot cost for a Class A/Good General Hospital.

Additional Elevators: The proposed project includes seven (7) elevators for patient, public and freight movement within the facility. One (1) freight elevator is designed to alleviate congestion and provide efficiencies in work-flow as well as safety and infection control functions. The service elevator is included as an extraordinary cost.

Foundation Drainage and Dewatering: This system will allow the installation of the deep foundation system elements as well as prevent water intrusion into the building foundation. These costs are specifically excluded from the Marshall & Swift Valuation base square foot cost for a Class A/Good General Hospital.

Site Improvements: Yard improvement costs for hardscape paving, furniture, flagpoles, site lighting, etc. These costs are specifically excluded from the Marshall & Swift Valuation base square foot cost for a Class A/Good General Hospital.

Pneumatic Tube System: The costs for the pneumatic tube system are included in the construction manager's construction cost estimate and not in the Owner's equipment cost. These costs are specifically excluded from the Marshall & Swift Valuation base square foot cost for a Class A/Good General Hospital.

Redundant Generator Capacity: Based on load calculations, a third generator is being procured that will fill the emergency power requirements of the hospital in the event of a generator failure or routine service. This is included to increase patient safety and maintain facility operations.

Helipad: Helicopter landing pads are not required in typical hospital construction.

Premium Concrete Frame Construction: The design of the building requires a concrete frame (versus steel) to meet the seismic requirements and wind loading to reduce lateral movement and vibration.

Concrete Frame Construction Premium - The structural design of the building requires a concrete (versus steel) frame to meet the seismic requirements and wind loading, to reduce movement.

Market Sprinkler Cost Difference: Currently, Holy Cross' construction cost consultants are seeing sprinkler costs that are considerably higher than the \$2.08/sf used by MVS. The cost difference has been included as an extraordinary cost.

LEED Certified Project Premium: By statute, all new construction in Montgomery Co, Maryland must attain a minimum LEED Certification standard. In order to achieve this certification, costs above and beyond basic construction costs will be realized; e.g. recycled materials, higher efficiency equipment and full system commissioning.

LEED Silver Certified Project Premium: Based upon new Montgomery Co, Maryland regulation regarding enhanced storm water management and energy efficiency standards, the Holy Cross Germantown Hospital Project will attain a LEED Silver Certificate at the completion of the project. These additional premium costs include features such as green roofs, bio-retention measures, recycled materials procurement and disposal measures, and copious documentation of construction materials and methodologies. The Silver Certified Project Premium reflects the costs that are in addition to the basic LEED Premium.

Redundant Boiler and Chiller Systems: The project will include redundant boiler and chilled water production equipment. This is to enhance patient safety and comfort as well as assist in the building operations and maintenance. The cost of this additional equipment is included as an extraordinary cost.

Site Improvements – Rough Grading: Based on the topography and terrain, significant rough grading will be required for the utilization of the site. These costs are specifically excluded from the Marshall & Swift Valuation base square foot cost for a Class A/Good General Hospital.

Architectural Features: Architectural design elements that do not enhance functionality but provide aesthetic appeal. The cost for these design elements is included as extraordinary cost.

MVS Benchmark	\$	356.09
The Project	\$	371.77